DOCUMENT RESUME

ED 353 259 SP 034 292

TITLE	Academic Achievement of White, Black, and Hispanic Students in Teacher Education Programs.
INSTITUTION	American Association of Colleges for Teacher Education, Washington, D.C.
SPONS AGENCY	EXXON Education Foundation, New York, N.Y.
REPORT NO	ISBN-0-89333-094-9
PUB DATE	92
NOTE	68p.
AVAILABLE FROM	American Association of Colleges for Teacher Education Publications, One Dupont Circle, N.W., Suite 610, Washington, DC 20036-1186 ($15).
PUB TYPE	Reports - Research/Technical (143) -- Statistical Data (110)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Academic Achievement; Admission Criteria; *Black Students; College Entrance Examinations; College Preparation; College Students; Ethnicity; Grade Point Average; Higher Education; High Schools; *Hispanic Americans; Predictive Measurement; Predictive Validity; *Predictor Variables; Race; Standardized Tests; *Teacher Education Programs; *White Students
IDENTIFIERS	American Association of Colleges for Teacher Educ; *Hispanic American Students

ABSTRACT

This study examines how high school preparation, standardized test scores, and scores on program entrance examinations are indicators of White, Black, and Hispanic students' academic performance and completion of teacher education programs. Transcripts of teacher education students (N=712) matriculating in traditional 4-year teacher education programs were collected and analyzed. Results indicate that: students of all races and ethnic groups within the same institution are admitted using the same policy and standards; a correlation exists between high school grade point average (GPA) and success in teacher education programs; GPA is a better predictor of success than Scholastic Aptitude Test (SAT) scores; type of institution attended has a significant effect on mean grades earned; no significant effect was found between race/ethnicity and grades earned; performance in methods courses is better than in foundation courses; completion data indicates a higher attrition rate for Blacks than for Whites and Hispanics; and the highest graduation rate for all students is in large research institutions. A large part of the report consists of tables. The report concludes with three appendices: Teacher Education Institutions by Type, Institutional Data, and Supplementary Tables. (Contains 60 references.) (LL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED353259

Academic Achievement of White, Black, and Hispanic Students in Teacher Education Programs

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

D Lang

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

SP034492

American Association of Colleges for Teacher Education

BEST COPY AVAILABLE

Academic Achievement of White, Black, and Hispanic Students in Teacher Education Programs

American Association of Colleges for Teacher Education

One Dupont Circle, Suite 610 • Washington, DC 20036-1186

phone 202/293-2450 • fax 202/457-8095

Support for the publication of this document was made available by the Exxon Education Foundation.

The opinions, conclusions, and recommendations expressed in this publication are not necessarily those of the funding source or the American Association of Colleges for Teacher Education (AACTE). AACTE is printing and distributing this document to stimulate discussion, study and improvement in the area of teacher education.

As in any report of this nature, every effort has been made to provide accurate data. Errors of calculation or omission are inadvertent and remain the responsibility of the author.

Copies of
Academic Achievement of White, Black and Hispanic Students in Teacher Education Programs
may be ordered from:

AACTE Publications
One Dupont Circle, NW
Suite 610
Washington, DC 20036-1186

Single Copy $15.00 (prepaid)

Copyright © 1992 American Association of Colleges for Teacher Education

All rights reserved

Printed in the United States of America

Library of Congress Number: 92-71299

International Standard Book Number: 0-89333-094-9

Contents

List of Tables v
List of Figures vii
Acknowledgments ix
Summary 1
Introduction 3
Purpose of the Study 4
Limitations of the Study 5
Presentation of Findings 6
General Admissions Requirements 6
Student Demographic Data 6
High School Academic Performance 7
High School GPA 7
SAT Scores 7
College Level Academic Performance 12
Gender and Race 12
Performance in Teacher Education Courses 17
Teacher Education Student Profile 21
High School GPA, SAT Scores as Correlates of
College Academic Performance 21
High School GPA 21
Scholastic Aptitude Test 22
Pattern of Academic Achievement of Students by
Institutional Types 25
Exit Record 25
Discussion 35
Conclusions 39
References 41
Appendix A: Teacher Education Institutions by Type 45
Appendix B: Institutional Data 46
Appendix C: Supplementary Tables 47

List of Tables

Table 1 8

Mean High School GPAs of 1985, 1986 Teacher Education Sophomores by Gender and Race/Ethnicity

Table 2 10

Mean Admission SAT Scores of 1985, 1986 Teacher Education Sophomores by Gender and Race/Ethnicity

Table 3 13

Mean College GPAs of 1985, 1986 Teacher Education Sophomores by Class, Gender and Race/Ethnicity

Table 4 18

Mean Distribution of Overall Grades in Teacher Education Courses Taken by 1985, 1986 Sophomores by Race/Ethnicity and Type of Institution

Table 5 19

Mean Grade Distributions in Teacher Education Courses Taken by 1985, 1986 Teacher Education Sophomores by Course Cluster, Race/Ethnicity and Type of Institution

Table 6 23

Mean, Standard Deviations and *t*-values of 1985, 1986 Teacher Education Academic Performance Variables by Race/Ethnicity

Table 7 26
Teacher Education Program Completion of 1985, 1986 Sophomores in 1989

Table 8 27
Teacher Education Program Completion of 1985, 1986 Sophomores in 1989 by Gender

Table 9 29
Teacher Education Program Within Group Completion of 1985, 1986 Sophomores in 1989 by Race/Ethnicity

Table 10 30
Percentage Distribution of Graduates by Institution Type

Table 11 32
Teacher Education Program Completion of 1985, 1986 Sophomores in 1989 Within Group by Type of Institution and Race/Ethnicity

Table 12 34
Percentage Distribution of Graduates by Institution Type and Race/Ethnicity

List of Figures

Figure 1 9

Mean High School GPAs of 1985, 1986 Teacher Education Sophomores by Race/Ethnicity

Figure 2 11

Mean Admission SAT Scores of 1985, 1986 Teacher Education Sophomores by Gender

Figure 3 15

Mean College GPAs of 1985, 1986 Teacher Education Sophomores by Class Gender

Figure 4 16

Mean College GPAs of 1985, 1986 Teacher Education Sophomores by Class and Race/Ethnicity

Figure 5 20

Mean Grade Distribution in Teacher Education Courses Taken by 1985, 1986 Teacher Education Sophomores by Course Cluster and Race/Ethnicity

Figure 6 28

Teacher Education Program Enrollment and Completion, by Gender

Figure 7 33

Teacher Education Program Enrollment and Completion, by Race/Ethnicity

Acknowledgments

The American Association of Colleges for Teacher Education thanks the many individuals and institutions that contributed to the development of the teacher education student achievement study, technical and general reports. A national advisory committee was convened to develop the survey design and content, and to review the technical report. Members of this group are: Beverly Cole, Director of Education, NAACP; James Davis, Assistant Professor of Educational Studies, University of Delaware; A. Lin Goodwin, Assistant Professor of Education, Teachers College, Columbia University; Sylvia Johnson, Chair, Psychoeducational Studies, Howard University; George Madaus, Director, Center for the Study of Testing, Evaluation and Education Policy, Boston College; and Elaine Witty, Dean of Education, Norfolk State University. Their advice and counsel was very valuable. The survey was made possible given the voluntary cooperation of institutional liaisons at 34 member institutions.

The principal investigators for this study were Ebo Otuya, Jr., Mary E. Dilworth, and Peggy Carr. Otuya is Assistant Director of Research at Howard University's College of Arts and Sciences, Dilworth is AACTE's senior director for research, and Carr is in Howard University's Department of Psychology. They were ably assisted by Cynthia Graddy, Cathleen Seigel, and Joy Brewster.

Last, but not least, we appreciate the generous contribution of the Exxon Education Foundation to underwrite the study activities.

Summary

A total of 712 transcripts of teacher education students who were sophomores in 1985 and 1986 in traditional four-year teacher education programs were collected and analyzed. Cross-tabulations, ANOVAs, correlations, and regression analyses were conducted to determine differences and relationships among selected demographic variables, high school records, and college performance. The study revealed the following highlights:

- While there were differences among institutions in admissions policy and criteria, students of all races and ethnic groups within the same institution were admitted using the same policy and standards.
- Although there was a considerable gap between the entry academic achievement of Whites and minorities (Blacks and Hispanics) in high school GPA and on SAT admission scores, such gap narrowed as the students progressed through college. A significant correlation was found between high school GPA and success in teacher education programs for the entire sample.
- The analyses also indicated that high school GPA was a better predictor of success for all teacher education students than were SAT scores. However, while combined SAT scores (SAT-math and SAT-verbal) predicted success for Whites, only the SAT-verbal scores were found to predict success for Blacks.
- The type of institution that students attended had a significant effect on the mean grade that they earned. Black and Hispanic students enrolled in large research universities and doctoral-granting institutions usually earned higher mean grades than their counterparts enrolled in other institutional types.
- No significant effect was found between race/ethnicity as a single factor and the grades that students earned in their respective courses.
- Students' performance in teacher education course clusters (foundations, methods, and field experience) was generally observed to be better in methods courses than in foundations courses.
- Completion data by race/ethnicity indicated a higher attrition rate for Blacks than for their White and Hispanic counterparts.
- While the highest graduation rate for all students was observed to be in large research universities, the lowest graduation rate occurred in specialized institutions. The highest graduation rates by race occurred in large research universities for Whites, doctoral-granting institutions for Blacks, and large research universities and doctoral-granting institutions for Hispanics.

Introduction

Extensive research and numerous studies have attempted to document the reasons for the precipitous decline in the number of Blacks, Hispanics, and other minorities entering teaching. The most frequently cited reasons include the imposition of new and additional teacher entry, exit, and certification tests (Smith, 1987; DeMauro, 1989); migration of actual and potential teachers to other professions (Darling-Hammond, Johnson Pittman, & Ottinger, 1987; Harris & Associates, 1988; Post & Woessner, 1987; Gifford, 1986); an aging minority teaching population with a disproportionate number of retirees (Watts, 1986; Garibaldi, 1987); decline of interest in teaching of college-going minorities (Astin, 1978, 1987); and low teacher status and salaries (Feistritzer, 1989; Garibaldi, 1987).

Two important arguments, role modeling and the quality of education which minority students receive, to a large extent, provide the rationale for increasing the supply of minority teachers in the nation's educational system. The growing ethnic diversity among the nation's student population presents a strong argument for proportional representation of minority teachers in the classroom who would serve as role models. Another important argument is the quality of education dimension. As the nation becomes increasingly diverse in race, ethnicity, culture, and language, minority teachers serve as cultural translators in pedagogical styles that can enhance the cognitive development of students. Although these arguments sound quite convincing, acceptable policies and programs geared toward increasing the supply of minority teachers still attract interesting debates, which are deeply rooted in the nation's reform efforts to provide educational access as well as to improve educational quality and excellence.

The Holmes Group report (1986) for example, prescribed the adoption of rigorous standards in teacher preparation in order to improve the status and working conditions of the teaching profession. These standards include national and state entry and/or exit tests to measure teacher performances, and the stratification of the teaching profession into cadres to stimulate competition and excellence. This report also recommended that licensure and upward mobility of teachers with regard to experience and skill, within the profession, be based on satisfactory performance on teacher examinations. Although expert opinions lend support to the premise that performance on paper-and-pencil tests do not reflect the ability to teach (Bray, 1984; Darling-Hammond, 1985; Garcia, 1986; Smith, 1987), these tests continue to be the sole evaluative criteria to assess teacher ability.

Almost every state has implemented some form of teacher competency testing program (Rudner, 1987) and the impact of these tests on minority teachers has been remarkable. Tests disproportionately reduce the pool of minority teachers already in the field who may perform poorly on tests due to inadequate preparation, test anxiety, or a lack of access to resource materials (DeMauro, 1989; Cole & Moss, 1989). Mandated testing also discourages prospective high school and college students from considering teaching as a profession (Gifford, 1986).

There are many programs in place that attempt to increase minority participation in the teaching profession. These include, among others, targeting high school students who show interest in teacher education, increased funding for minority students, loan forgiveness, increased salaries for teachers, enlisting midcareer professionals into teaching, and designing programs that improve minority performance on standardized tests. Some of these programs targeted toward minorities have been criticized on the basis of the quality of students admitted to teacher education programs. Some critics

have suggested that in order to gain more minority candidates, admission standards have been waived or that "targeted" programs for minorities are less rigorous than regular entry programs. Some critics have gone as far as to suggest that a dual track system exists, either tacitly or directly, that ensures that an adequate number of minority students are recruited, retained, and graduated without quality assurance. This latter contention raises two broad questions:

- Do teacher education institutions use different admissions criteria to admit minority students?
- Are the admissions criteria used for selecting prospective students good indicators of academic success of teacher education students of all races?

The issue of minority underrepresentation in the teaching profession goes beyond data generation. It requires striking a balance between providing the students with access to the teacher education pipeline, as well as producing well-qualified teachers for the nation's classrooms. An analysis of this nature provides the basis for formulating policies and devising new strategies to strike this balance.

Purpose of the Study

This study examined how high school preparation, standardized test scores, and scores on program entrance examinations were indicators of White, Black, and Hispanic students' academic performance and completion of teacher education programs. Are high school Grade Point Averages (GPAs), Scholastic Aptitude Test (SAT) scores, American College Testing Program (ACT) scores, and program entrance examination scores good indicators of White, Black, and Hispanic students' success in college as measured by college GPAs, grades in teacher education courses, and completion? Does such analysis show distinctions and differences in Schools, Colleges, and Departments of Education's (SCDE) efforts to attract, retain, and graduate minorities in teacher education? To provide a focus in examining these issues, the following research questions were raised:

- What is the relationship between high school Grade Point Average (GPA) and successful academic performance and completion of White, Black, and Hispanic students enrolled in teacher education programs?
- What is the relationship between SAT/ACT scores and White, Black, and Hispanic students' academic performance and completion of teacher education programs?
- Do teacher entrance examination scores predict White, Black, and Hispanic students' performance and completion of teacher education programs?

In order to address these research questions, institutions that offer teacher education programs were selected by using a stratified random sampling technique. These included American Association of Colleges for Teacher Education member institutions. They were coded according to the Carnegie Institution Classification Index (Carnegie Foundation, 1987) using such indicators as type, size and academic rigor. Six institutional categories were developed (see Appendix A). A total of 34 institutions were then selected randomly, and they agreed to participate. Twenty-three of the 34 participating institutions provided usable data.

The institutions were asked to designate a liaison to assist in data collection. A survey instrument was designed and mailed to the liaisons with detailed procedures for selecting a representative sample of fall 1985 and 1986 teacher education sophomores (see Appendix B). In order to obtain a sample size for a meaningful analysis, the 1985 and 1986 samples were combined and a total of 712 White, Black, and Hispanic undergraduate sophomores were selected from the identified institutions. The specific data requested of the sample and analyzed included high school GPA, high school rank (when available), SAT/ACT test scores, college overall GPA (freshmen, sophomore, junior, senior), program entrance examination scores, grades in teacher education courses, and graduation date.

Some of the key terms used were defined to reflect a better understanding of their contextual usage in this study. These include:

- *Academic Performance*—the students' earned grades in the teacher education courses taken, and the students' cumulative GPAs in the freshman, sophomore, junior, and senior years.
- *Program Completion (success)*—the 1985 and 1986 teacher education sophomores who actually completed and graduated from the teacher education program by fall of 1989 with qualifications for initial certification.
- *Dropout/Stopout (nonsuccess)*—the 1985 and 1986 teacher education sophomores who did not complete, graduate, nor continue enrollment in the teacher education program by fall of 1989.

Limitations of the Study

This study is not without its limitations. In most cases, data generated from very small cell sizes were either not reported at all or reported with caution. This was particularly true of the Hispanic population. The number of students within the Hispanic group was in some cases very small and analyses of certain academic performance variables were not attempted. The same problem of small cell size was encountered in trying to analyze data by gender within racial/ethnic groups.

The data reported on ACT and teacher entrance examination test scores were inadequate for any meaningful analysis. Although institutions indicated using a multiple criteria for admitting sophomore students to the teacher education programs, the data provided for teacher entrance examination scores were inadequate for analysis. Only about a third of the sample provided SAT scores used as teacher entrance examination admissions scores. This limits the generalizability of results.

Finally, it was discovered that very few students (1.3 %) were given provisional admissions for failing to meet the minimum admissions requirements. This seriously limited the investigation with regard to whether the students who were provisionally admitted successfully completed and graduated from the teacher education programs. However, the limited number of students found in this category suggests that most students were indeed meeting the minimum admissions requirements for the institution attended.

Presentation of Findings

General Admissions Requirements

The data indicate that over 45% of the students with a 2.5 sophomore GPA or higher (on a 4.0 scale) were admitted to teacher education programs, while about 40% were admitted with a minimum of 2.0 GPA or higher. Although most SCDEs do not require a GPA in prerequisite teacher education courses, those that do require a 2.0 GPA or higher.

More than half of the records (52%) indicated that students were required to take two to four prerequisite courses in education before they were admitted. Prerequisite courses fell within the categories of general education including mathematics and English and/or introductory educational foundation courses.

About one of every four institutions required at least one letter of reference as an admissions criterion into teacher education. Only 5% of the institutions used other criteria including statement of interest, autobiography, faculty recommendations, and interviews to make admissions decisions. Although the majority of the institutions did not assign weight to admissions criteria, more than 9% assigned at least 50% weight to sophomore GPA and teacher entrance examination scores. However, there was little evidence that this 9% actually implemented the criterion in the context of their institutional reforms. The overwhelming majority of institutions reported SAT scores for their criterion referenced test. Very few institutions reported using tests such as PPST, NTE, CBEST, etc. In fact, no meaningful analysis could be conducted for these tests due to the extremely small number of cases.

The general profile that emerged from the analysis suggests a broad use of multiple criteria for admissions with evidence of more reliance on cognitive criteria such as GPA and test scores, than on noncognitive criteria such as letters of recommendation, personal essays, interviews and portfolios in making decisions to admit students to teacher education programs. Admission requirements for each institution were found to be uniform and constituted the basis upon which students of all races were selected for admission. A few institutions give provisional admissions to students with low sophomore GPA, low entrance examination scores (SAT), or a combination of both, but the cases were too few to analyze.

Student Demographic Data

The sample included 712 students who were enrolled as sophomores in the fall of 1985 and 1986. It consisted of 79% female and 21% male, with a racial composition of 75.8 % White, 19.1% Black, and 5.1% Hispanic.

The data on geographic distribution revealed that a majority of the students were born either in the central region (27.7%), or in the Southeast (25.6%). The students that came from the West comprised 16.4%, while students born in the North accounted for 14% of the population. A small number of the students (2.5 %) were born outside the United States.

In regard to academic major, 1 of every 2 students surveyed majored in elementary education while about 1 of every 4 students enrolled in secondary education. In early childhood and special education, 1 student of every 15 enrolled; and K-12 and middle school programs had fewer students enrolled.

High School Academic Performance

The analysis of high school records reveals that about three-quarters of the students, 75.3%, attended public high schools compared to 24.7% who attended private high schools. The data also indicate that two-thirds of the students were transfer students from community colleges or from other universities, while one-third represented nontransfer students. Proportionally, Blacks were more likely to have transferred from community colleges than were Whites and Hispanics.

High School GPA

The data on high school GPA (Table 1) indicate that the mean GPA of females is significantly different from that of males. The mean high school GPA for females was 3.14 (B) compared to 2.89 (C) for males. However, males' average performance on tests was slightly better than females' as reflected by SAT scores (Table 2).

The mean high school GPA was also found to be significantly different among racial groups. Consistent with the trend noted by Astin (1971), the mean high school GPA for Whites was 3.30, followed by Hispanics with 3.02, and Blacks with 2.62 (Table 1, Figure 1).

SAT Scores

Students' SAT admission scores were analyzed by sex and race. A total of 222 records (31.2%) contained SAT scores. These were scores with which students were initially admitted to college. The data in Table 2 (Figure 2) show that the mean SAT-math and SAT-verbal scores for male students were slightly higher than those of their female counterparts. The mean SAT-math and mean SAT-verbal scores for males were higher than the females' by 13 and 3 points, respectively. The SAT-combined scores of females differed by 16 points from that of males; however, the difference was not statistically significant.

There was a significant difference in the performance of White and Black students on SAT scores. As Table 2 indicates, the mean SAT-math score for Whites was 522 compared to 370 for Blacks. Similarly, the mean SAT-verbal score for Whites was 490 compared to 354 for Blacks. Whites had a combined SAT mean score of 1012, while Blacks had a combined mean SAT score of 724. The cell sizes for the Hispanic group, as well as for gender within racial groups, were too small to make any meaningful comparison.

A combined mean SAT score of 929 of the students in the sample was found to be higher than the national average for comparable years. The combined mean SAT score of the 1984 freshman class was 897, and was 906 for the 1985 freshman class (College Board, 1989). This comparison should be interpreted with caution due to the fact that the students who reported their scores may not necessarily have taken the SAT tests in 1984 or 1985. It is possible that since the average teacher education student is older than the normal college-going age, these students may have taken their SAT tests several years prior to their sophomore years.

Table 1

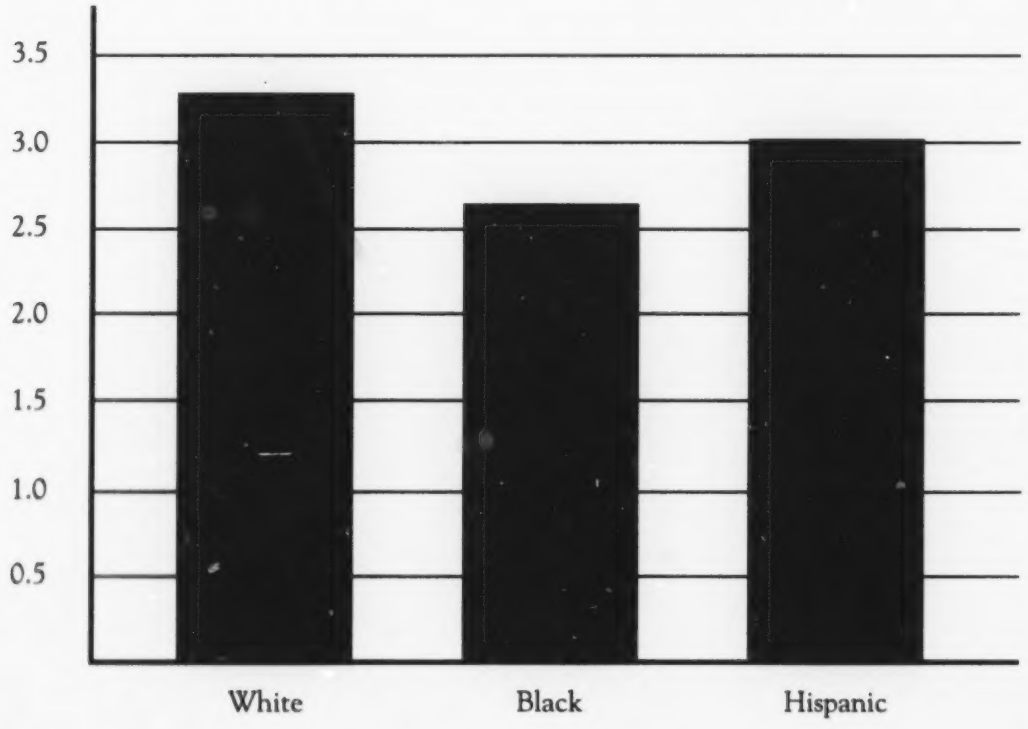
Mean High School GPAs of 1985, 1986 Teacher Education Sophomores by Gender and Race/Ethnicity

Variables	N	Mean GPA	SD
Sex			
Female	285	3.14	0.54
Male	62	2.89	0.65
Total Group	347	3.10	0.57
Race/Ethnicity			
White	258	3.30	0.49
Black	85	2.62	0.56
Hispanic	10	3.02	0.38
Total Group	353	3.10	0.57

Note: Missing Cases = 359
Source: AACTE Academic Achievement Stud·· 1989

Figure 1

Mean High School GPAs of 1985, 1986 Teacher Education Sophomores by Race/Ethnicity



Source: AACTE Academic Achievement Study, 1989

Table 2

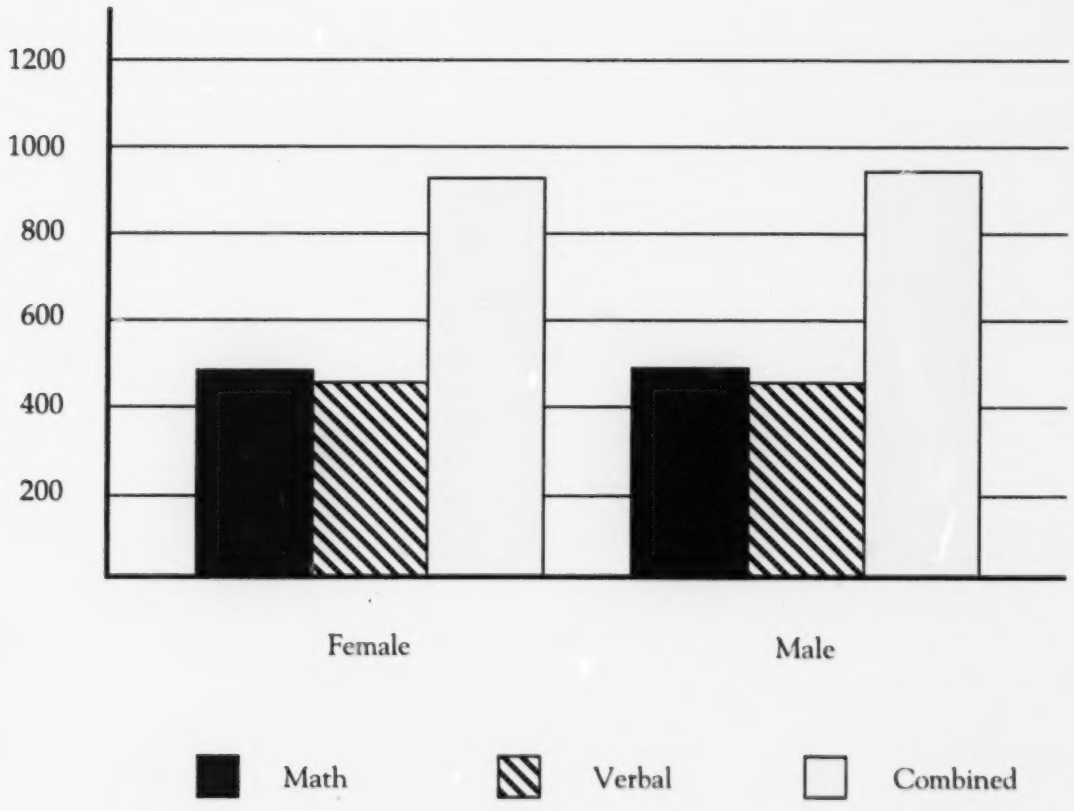
Mean Admission SAT Scores of 1985, 1986 Teacher Education Sophomores by Gender and Race/Ethnicity

Variables		Math		Verbal		Combined	
	N	Mean	SD	Mean	SD	Mean	SD
Sex							
Female	193	477	115.02	451	108.75	928	196.08
Male	29	490	118.80	454	106.46	944	205.27
Total Group	222	478	115.31	451	108.02	929	196.51
Race/Ethnicity							
White	158	522	92.73	490	90.96	1012	149.92
Black	62	370	93.71	354	85.48	724	157.80
Hispanic*	2	485	91.92	375	77.78	860	162.63
Total Group	222	478	115.31	451	108.02	929	196.5

Note: Missing Cases = 490
Source: AACTE Academic Achievement Study, 1989
* Results should be interpreted with caution due to small cell size.

Figure 2

Mean Admission SAT Scores of 1985, 1986
Teacher Education Sophomores by Gender



Source: AACTE Academic Achievement Study, 1989

College Level Academic Performance

Gender and Race

The grade point averages (GPA) of students were examined for males and females, and for the different racial/ethnic groups during the freshman, sophomore, junior, and senior years. The data revealed that females had significantly better college performance than their male counterparts in all years. In the freshman year, the mean GPA for females was 2.81 compared to 2.67 for males. The mean sophomore GPA observed for females (2.90) was also significantly different (2.71) from the males. Similarly, in the junior year, the mean GPA was higher for females (3.04) than for males (2.83). Finally, females had a mean GPA of 3.16 in their senior year compared to 2.99 for males (See Table 3, Figure 3).

The data in Table 3 (Figure 4) seem to suggest that Hispanics had slightly higher mean college GPAs than Whites, and significantly higher mean GPAs than Blacks, but the cell size was relatively small compared to other groups. In any event, the pattern that emerged for all groups suggests that there is a relationship between GPA and academic class. All students' GPAs progressively improved as they moved up in the academic pipeline.

Table 3
Mean College GPAs of 1985, 1986 Teacher Education Sophomores by Class, Gender, and Race/Ethnicity

Variables	N	Freshman Mean GPA	SD
Sex			
Female	484	2.81	0.57
Male	130	2.67	0.55
Total Group	614	2.78	0.57
Race/Ethnicity			
White	498	2.83	0.57
Black	94	2.51	0.53
Hispanic	28	2.85	0.49
Total Group	620	2.78	0.57

Note: Missing Cases = 98

Variables	N	Sophomore Mean GPA	SD
Sex			
Female	497	2.90	0.56
Male	126	2.71	0.48
Total Group	623	2.86	0.55
Race/Ethnicity			
White	491	2.90	0.54
Black	106	2.61	0.50
Hispanic	32	2.93	0.51
Total Group	629	2.86	0.55

Note: Missing Cases = 89

Table 3 *(continued)*

Variables	N	Mean GPA	SD
	Junior		
Sex			
Female	443	3.04	0.46
Male	111	2.83	0.42
Total Group	554	3.00	0.46
Race/Ethnicity			
White	451	3.03	0.47
Black	85	2.82	0.36
Hispanic	25	3.05	0.48
Total Group	561	3.00	0.46

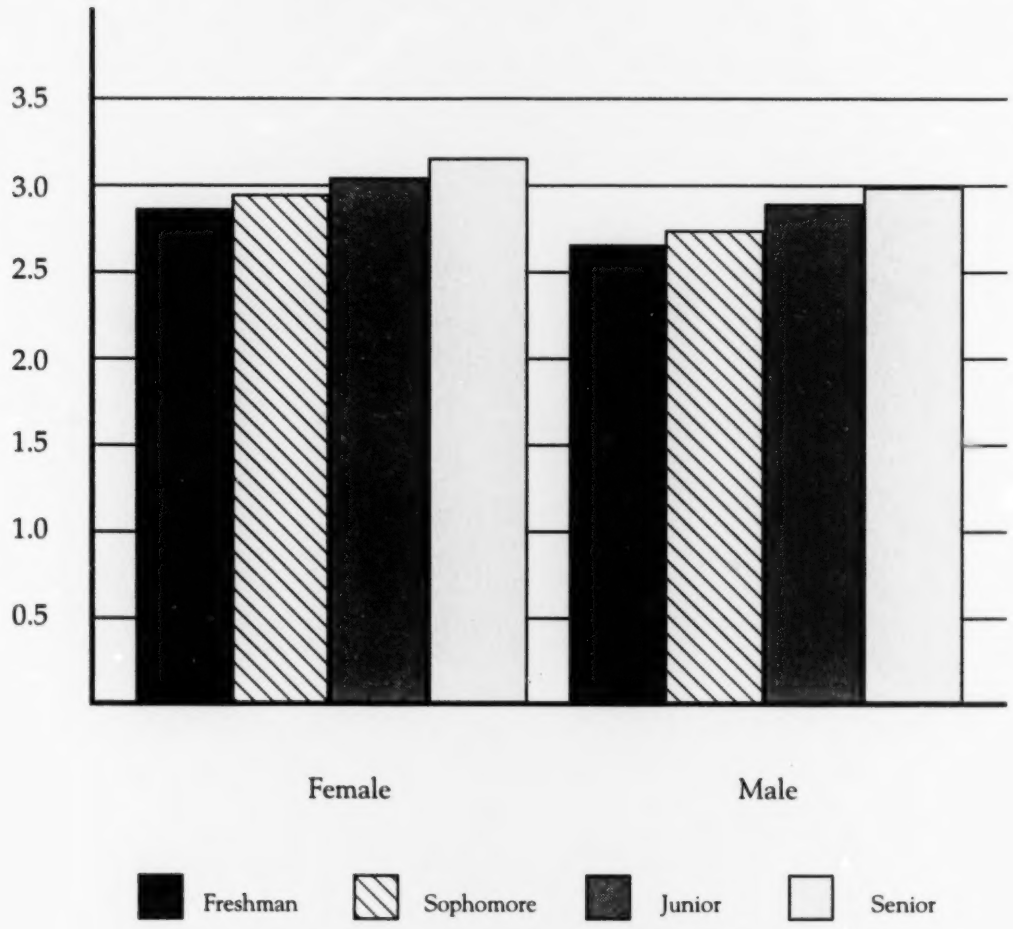
Note: Missing Cases = 153

Variables	N	Mean GPA	SD
	Senior		
Sex			
Female	414	3.16	0.40
Male	90	2.99	0.41
Total Group	504	3.13	0.40
Race/Ethnicity			
White	392	3.17	0.41
Black	91	2.97	0.34
Hispanic	28	3.18	0.34
Total Group	511	3.13	0.40

Note: Missing Cases = 208
Source: AACTE Academic Achievement Study, 1989

Figure 3

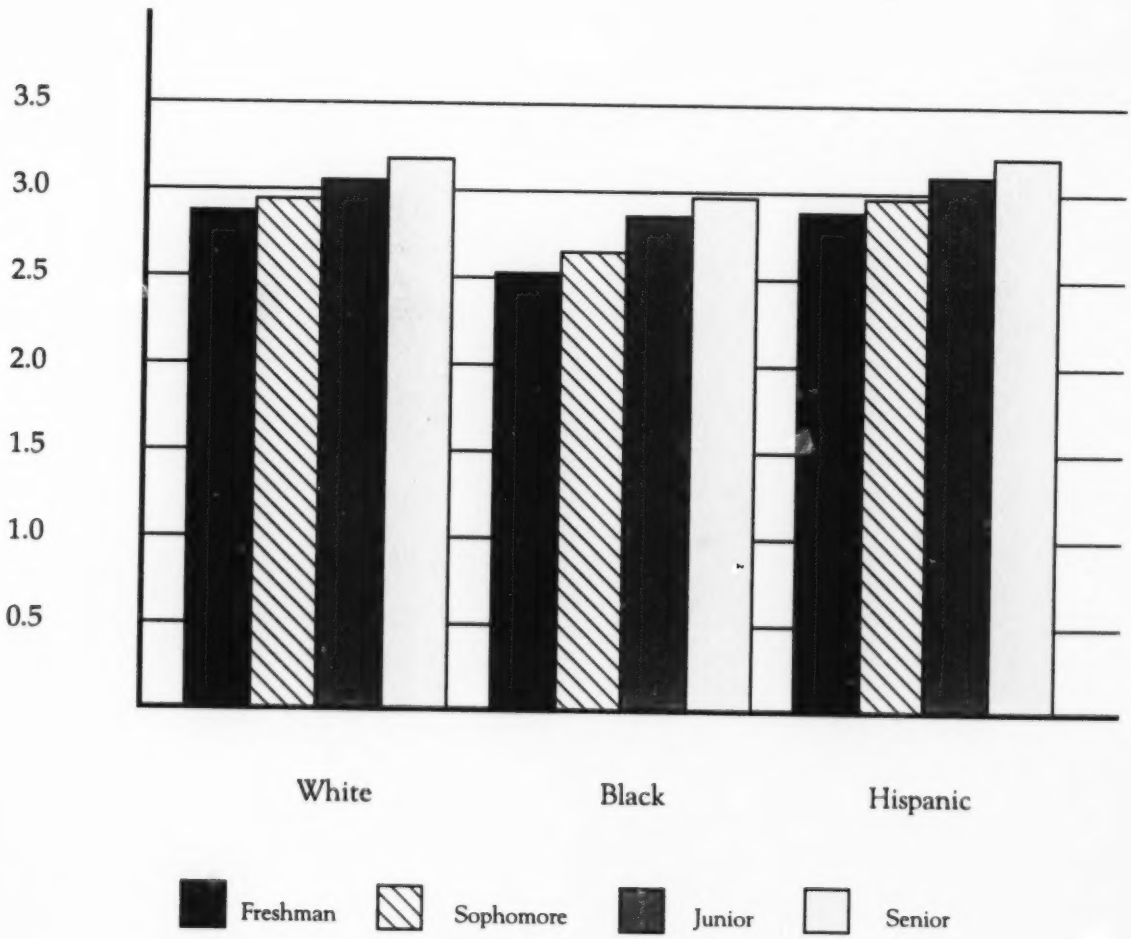
Mean College GPAs of 1985, 1986 Teacher Education
Sophomores by Class and Gender



Source: AACTE Academic Achievement Study, 1989

Figure 4

Mean College GPAs of 1985, 1986 Teacher Education
Sophomores by Class and Race/Ethnicity



Source: AACTE Academic Achievement Study, 1989

Performance in Teacher Education Courses

Although the picture of the students' overall college performance looks impressive, such a finding could conceal how well students actually did in their majors. Thus an examination of students' performance in teacher education courses by institutional type and course cluster was conducted. The courses were grouped into the categories of foundations, methods, and field experience.

According to the data in Table 4, the lowest mean grades observed for White students were in research universities (3.26), in comprehensive colleges and universities (3.23), and private liberal arts colleges (3.23), respectively. Black students tended to perform better in research universities (3.46) and in doctoral-granting institutions (3.12) than in public liberal arts colleges (3.07), specialized institutions (3.08), and comprehensive colleges and universities (3.04).

The highest GPAs for Hispanic students were noted in doctoral-granting institutions (3.46) and in research universities (3.29). Hispanic students that attended private liberal arts colleges earned a mean grade of 3.12. The lowest mean grade (3.08) was observed for Hispanic students enrolled in comprehensive colleges and universities and in public liberal arts colleges. (See Note below.)

Students who attended certain types of institutions earned grades that were significantly different. Race, on the other hand, did not have a significant impact on the grades students earned. However, a two-way interaction between race and type of institution was found to have a significant impact on the students' performance. This pattern of interaction indicates that Black students who enroll in research universities (see Table 4) earn higher mean grades (3.46) than their White (3.26) and Hispanic (3.24) counterparts. Hispanic students in doctoral-granting institutions had higher grades (3.46) than did Whites (3.44) or Blacks (3.12). In all remaining types of institutions (See Table 4), Whites earned higher mean grades than Blacks and Hispanics.

When grades were clustered by course type, a different pattern of student performance emerged. The data in Table 5 (Figure 5) show the distribution of mean grades in foundations and methods courses and in practicum and student teaching field experiences, by group. In foundations courses, Whites had a higher mean grade (3.28) than Blacks (3.13) and Hispanics (3.08). In methods courses, both Whites and Hispanics earned a higher mean grade (3.42) than Blacks (3.21). In regard to practicum courses, Hispanic students earned higher mean grades (3.86) than Whites (3.79) and Blacks (2.75), and in student teaching, Blacks scored higher (3.56) than Hispanics (3.30) and Whites (3.20).

Note: The distribution of overall grades in the teacher education course cluster (foundations, methods, practicum, and student teaching) was computed by race and type of institution. The means were calculated based on letter grades which students earned, and were expressed on a 4-point scale, where A = 4 points, B = 3 points, C = 2 points, and D = 1 point. Due to a large discrepancy in sample size amongst institutions, the data summary in Table 5 should be interpreted with caution.

Table 4

Mean Distribution of Overall Grades in Teacher Education Courses Taken by 1985, 1986 Sophomores by Race/Ethnicity and Type of Institution*

Race/Ethnicity	Type of Institution*					
	I	II	III	IV	V	VI
White	3.26	3.44	3.23	3.23	3.45	3.51
	(76)	(176)	(84)	(63)	(107)	(5)
Black	3.46	3.12	3.04	2.79	3.07	3.08
	(34)	(7)	(58)	(4)	(2)	(16)
Hispanic	3.24	3.46	3.08	3.12	3.08	—
	(8)	(7)	(11)	(6)	(2)	(0)
Total	**3.32**	**3.42**	**3.15**	**3.20**	**3.44**	**3.18**
	(118)	**(190)**	**(153)**	**(73)**	**(111)**	**(21)**

Note: Cell sizes in parenthesis
Source: AACTE Academic Achievement Study, 1989

*Institutional Type:

I = Research Universities
II = Doctoral-granting Institutions
III = Comprehensive Colleges and Universities
IV = Private Liberal Arts Colleges
V = Public Liberal Arts Colleges
VI = Specialized Institutions

Table 5

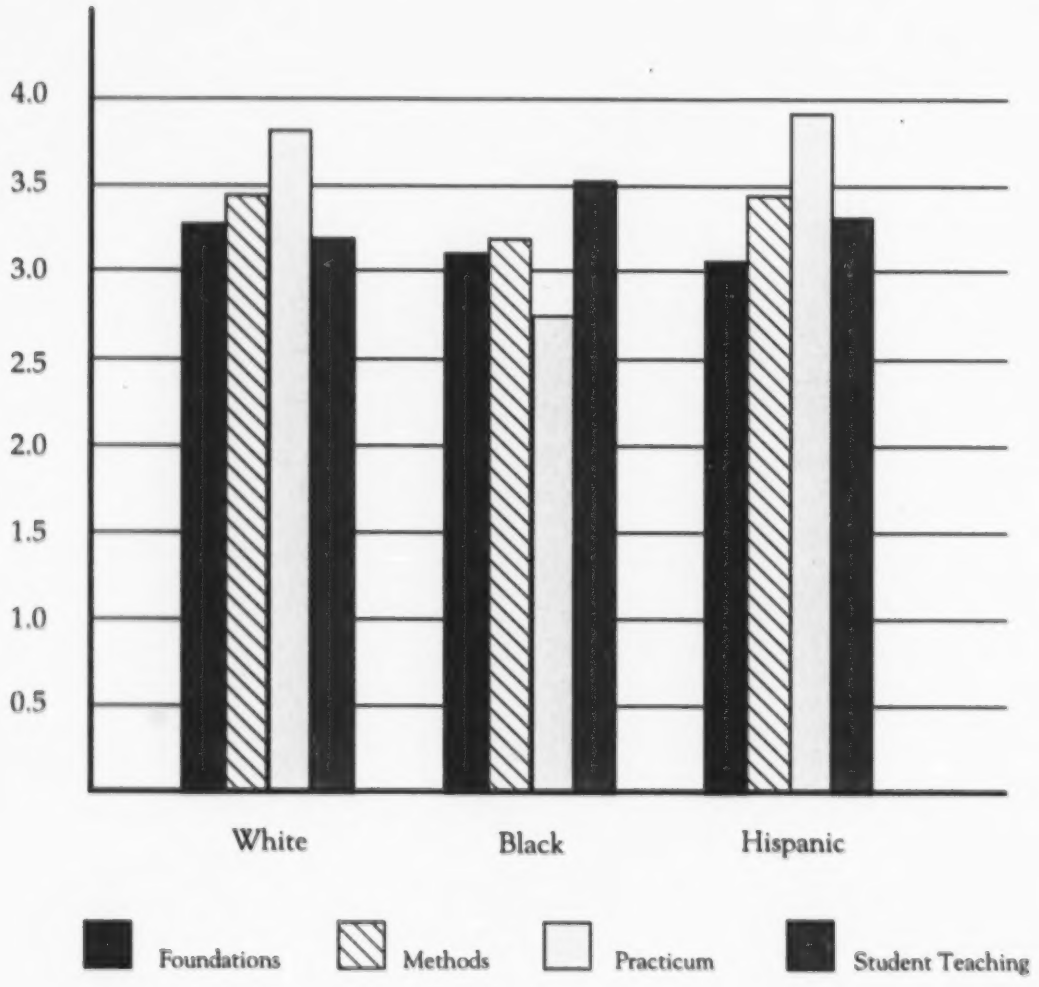
Mean Grade Distribution in Teacher Education Courses Taken by 1985, 1986 Teacher Education Sophomores by Course Cluster, Race/Ethnicity, and Type of Institution

Type of Institution	Foundations			Methods			Practicum			Student Teaching		
	W	B	H	W	B	H	W	B	H	W	B	H
Research	3.22	3.43	3.07	3.24	3.44	3.47	3.82	—	4.00	2.86	4.00	3.75
Universities	(75)	(34)	(8)	(71)	(32)	(6)	(27)	—	(1)	(22)	(1)	(2)
Doctoral—granting	3.35	3.03	3.42	3.50	3.06	3.55	3.84	—	4.00	3.29	—	3.00
Institutions	(161)	(7)	(7)	(165)	(7)	(7)	(15)	—	(3)	(25)	—	(3)
Comprehensive	3.17	3.03	2.93	3.31	3.07	3.43	3.63	3.50	3.67	4.00	4.00	—
Coll. & Univ.'s	(82)	(58)	(11)	(66)	(40)	(7)	(4)	(1)	(3)	(2)	(1)	—
Private Liberal Arts	3.10	2.79	2.88	3.40	3.67	3.19	3.60	—	—	3.50	—	—
Colleges	(59)	(4)	(5)	(51)	(1)	(6)	(5)	—	—	(2)	—	—
Public Liberal Arts	3.40	3.00	3.17	3.50	3.00	3.50	4.00	—	—	3.33	—	—
Colleges	(105)	(2)	(2)	(94)	(2)	(1)	(1)	—	(0)	(3)	—	—
Specialized	3.52	2.90	—	3.61	3.17	—	—	2.00	—	4.00	3.47	—
Institutions	(3)	(11)	—	(15)	(14)	—	—	(1)	—	(3)	(7)	—
Group Means	**3.28**	**3.13**	**3.08**	**3.42**	**3.21**	**3.42**	**3.79**	**2.75**	**3.86**	**3.20**	**3.56**	**3.30**
	(485)	**(116)**	**(33)**	**(462)**	**(96)**	**(27)**	**(52)**	**(2)**	**(7)**	**(57)**	**(9)**	**(5)**

Note: Cell sizes in parenthesis
W = White, B = Black, H = Hispanic
Source: AACTE Academic Achievement Study, 1989

Figure 5

Mean Grade Distribution in Teacher Education Courses Taken by 1985, 1986 Teacher Education Sophomores by Course Cluster and Race/Ethnicity



Source: AACTE Academic Achievement Study, 1989

Teacher Education Student Profile

The following discussion describes how successful teacher education students differ from unsuccessful students. Specifically, academic performance was gauged by the student's SAT scores and the GPA earned in high school, and throughout college. A successful student, as defined earlier, is one who completed and graduated from a four-year teacher education program with qualifications for initial certification. Conversely, an unsuccessful student is one who did not meet this criteria and dropped out or stopped out of the program. A trend noted for all students was the tendency for successful students to score higher, but not significantly higher, than unsuccessful students on SAT math, verbal, and combined scores.

In regard to race, the major factors distinguishing White students who succeed and those who do not succeed were GPAs earned in high school as well as in college. As indicated in Table 6, students who are successful have higher GPAs than those who are not successful, particularly in the sophomore and junior years. Similarly, successful Black students had higher GPAs in both high school and in college. This was particularly true for high school GPAs and for college sophomore GPAs.

High School GPA, SAT Scores as Correlates of College Academic Performance

A major concern of this study was the extent to which GPA and SAT scores are predictive of students' college academic performance, academic performance being defined as GPAs earned during college and completion of program. The analyses were performed as a function of race in addition to the sample as a whole.

High School GPA

A significant correlation was found between high school GPA and success in teacher education programs. In general the findings reveal significant correlations between high school GPA and success in teacher education programs regardless of race; i.e., the higher a student's high school GPA, the higher his/her college GPA and the greater the chances were of completion.

Analysis within groups indicate that high school GPA was significantly correlated with White students' college performances. The correlation was stronger in the freshman year, but gradually declined from the sophomore through the senior year for Whites. Strong correlations were also found between high school GPA and Black students' performance in teacher education programs. However, the pattern of the relationship was different from that of White students. For Blacks, the strength of the relationship between high school and college performance did not occur until the senior year.

For the Hispanic group, the data suggest that the performance of Hispanic students in high school was related to their college performance, but only in the senior year of college. However, the correlations between high school GPA and performance and completion of teacher education programs were not statistically significant. In most cases, the cell size was too small for any meaningful analysis.

Scholastic Aptitude Test

Another question in this study addressed the relationship between SAT/ACT scores, college performance and completion of teacher education programs among the various racial/ethnic groups. A weak, but significant, correlation was found between combined SAT scores and success in teacher education programs for the sample. However, the correlation between combined SAT scores and the successful completion of the program for Whites and Blacks was not statistically significant.

On the other hand, the analysis within racial groups indicated significant correlations between combined SAT scores and the college performance variable among White students. Fairly strong correlations were found between combined SAT scores and freshman, sophomore, junior, and senior GPAs, respectively. The results for Blacks and Hispanics were different. The correlations between SAT combined scores and freshman, sophomore, junior, and senior GPAs were not statistically significant. Thus the results indicated that combined SAT scores tend to predict White students' performance, but not Blacks' and Hispanics' performance. (The cell size for Hispanics was small, so these results should be interpreted with caution.) Also, a significant correlation was found between SAT-math and White students' college performance. As for Blacks, no significant relationship was found between their SAT-math scores and their college grades. However, additional analysis indicated that there are strong correlations between SAT-verbal scores and both White and Black students' freshman, sophomore, junior, and senior GPAs.

A series of stepwise multiple regression analyses confirmed the relative importance of SAT-math and SAT-verbal test scores in predicting students' performance and completion of teacher education programs for the sample as a whole. Using SAT-math and SAT-verbal scores as predictor variables and success and performance as measured by freshman, sophomore, junior, and senior overall GPAs as the criterion variables, in each analysis in turn, a total of four analyses were conducted.

The findings reveal that SAT-verbal scores predict freshman, sophomore, junior, and senior GPAs, respectively, for the entire sample. SAT-math, the other prediction variable, was not a significant predictor in any of the analyses. Further analyses, using the resulting prediction equation, revealed that an SAT-verbal score of 490 for Whites and 354 for Blacks predict students' successful completion and graduation from teacher education programs. However, it should be noted that the predictive value was better for Whites than for Blacks.

Table 6

Mean, Standard Deviations, and *t*-values of 1985, 1986 Teacher Education Academic Performance Variables by Race/Ethnicity

Race/performance variables	Graduated N	Mean	SD	Did not graduate N	Mean	SD	df	*t* values	*p* (two tailed)
WHITE									
HS GPA	191	3.31	0.47	66	2.89	0.49	255	2.24	0.026*
Fresh. GPA	357	2.89	0.54	140	2.69	0.60	495	3.50	0.001**
Soph. GPA	360	2.97	0.51	130	2.73	0.58	488	4.32	0.001**
Jr. GPA	358	3.08	0.48	58	2.86	0.45	414	3.21	0.003**
Sr. GPA	364	3.16	0.46	6	2.99	0.47	368	2.74	0.028*
SAT-math	124	527	92.22	34	504	93.84	156	1.25	0.213
SAT-verbal	124	493	92.43	34	477	85.43	156	0.94	0.350
SAT-combined	124	1010	149.35	33	978	151.59	155	1.11	0.270

* $p < .05$, ** $p < .001$

(continued)

32

Table 6 *(continued)*

Race/performance variables	Graduated N	Graduated Mean	Graduated SD	Did not graduate N	Did not graduate Mean	Did not graduate SD	df	t-values	p(two tailed
BLACK									
HS GPA	52	2.79	0.59	33	2.36	0.52	83	3.76	0.0001**
Fresh. GPA	59	2.60	0.49	35	2.36	0.59	92	2.14	0.035*
Soph. GPA	70	2.74	0.42	36	2.36	0.56	104	3.82	0.001**
Jr. GPA	70	2.88	0.41	1	2.56	0.00	69	—	—
Sr. GPA	70	2.99	0.39	1	2.99	0.00	69	—	—
SAT—math	42	375	104.53	20	356	65.80	60	0.78	0.438
SAT—verbal	42	368	87.64	20	326	74.72	60	1.88	0.065
SAT—combined	42	747	167.51	20	682	127.96	60	1.53	0.130
HISPANIC									
HS GPA	8	3.01	0.43	2	3.03	0.08	8	—	—
Fresh. GPA	23	2.86	0.46	5	2.79	0.64	26	0.27	0.786
Soph. GPA	25	2.99	0.45	7	2.71	0.68	30	1.31	0.20
Jr. GPA	21	3.10	0.41	1	3.25	0.00	20	—	—
Sr. GPA	21	3.21	0.39	1	3.24	0.00	20	—	—
SAT—math	2	485	91.92	—	—	—	—	—	—
SAT—verbal	2	375	77.78	—	—	—	—	—	—
SAT—combined	2	865	162.63	—	—	—	—	—	—

* $p < .05$, ** $p < .001$

Source: AACTE Academic Achievement Study, 1989

Pattern of Academic Achievement of Students by Institutional Types

Another crucial part of this study in addressing the issue of minority teacher shortages was to determine what types of institutions are most likely to produce minority teachers. Students' academic performance was examined for each racial/ethnic group and for the type of institution that they attended. The general profile indicated that research and doctoral-granting institutions tend to attract students with higher combined SAT scores than the other institutional types regardless of racial or ethnic background. Such students were seen to demonstrate improvements in their college performance as reflected by the higher grades that they earn, the longer they remained in school.

Specifically, the data showed a significant difference between high school GPA and type of institution. The highest mean high school GPA of 3.67 was observed for private liberal arts colleges followed by doctoral-granting institutions with 3.27, public liberal arts colleges with 3.18, research universities with 3.09, comprehensive colleges and universities with 2.93, and specialized teacher colleges with 2.48. Significant differences also were found between mean combined SAT scores of the institutional types. The highest combined SAT mean score of 989 was observed for doctoral-granting institutions followed by research universities with 962, private liberal arts colleges with 757, and comprehensive colleges and universities with 672. There were differences in students' college performance by institutional type, as reflected in GPAs, but these differences were not statistically significant. (See Table I in Appendix C.)

Exit Record

Exit record was analyzed by sex, race/ethnicity, and type of institution to determine who the prospective teacher graduates are. A total of 712 teacher education students' records were analyzed. One record was missing. Of the 711 teacher education students who enrolled in 1985 and 1986, 506 (71.2%) graduated and 205 (28.8%) stopped out or dropped out within four years (Table 7). With regard to sex, the data showed that females were more likely to graduate (74%) than not (26%), where as less difference existed between the percentage of males who graduated (60%) and those who did not (40%) (Table 8).

Table 7

Teacher Education Program Completion of 1985, 1986 Sophomores in 1989
(number and percent)

Variables	N	%
Graduated	506	71.2
Did Not Graduate	205	28.8
Total	**711**	**100.0**

$x^2 = 10.68$, $p < .001$
Note: missing cases = 1
Source: AACTE Academic Achievement Study, 1989

Table 8

Teacher Education Program Completion of 1985, 1986 Sophomores in 1989 by Gender (number and percent)

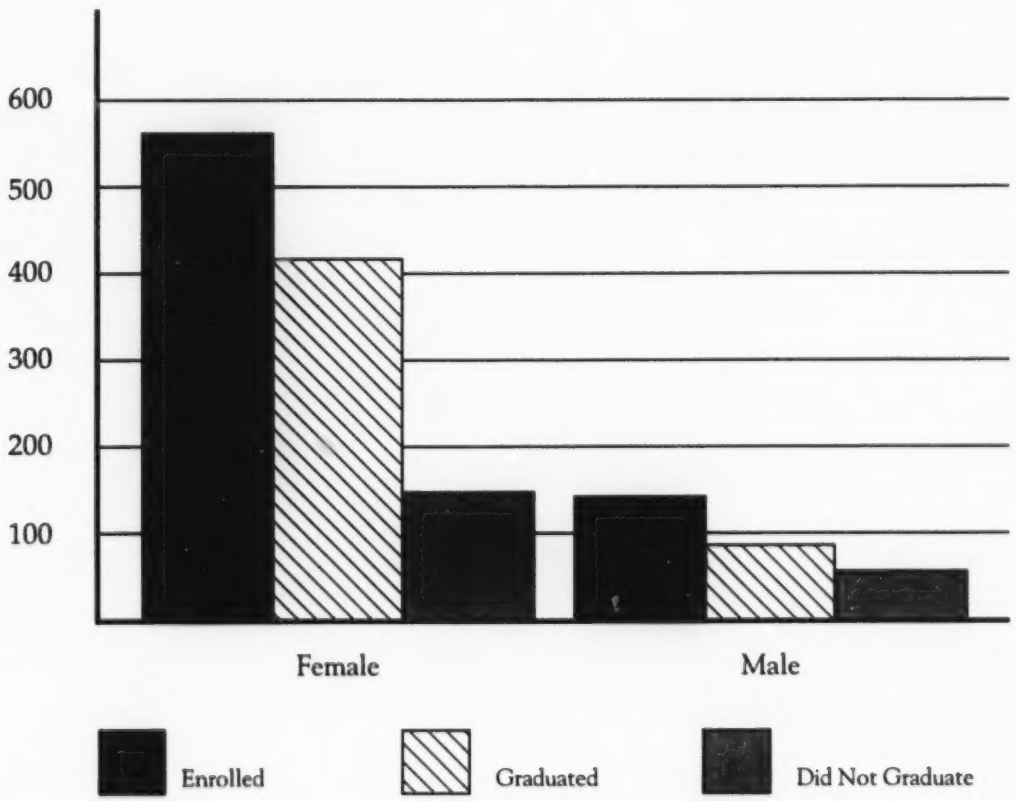
(N = 703)

Variables	N	%
Female		
Graduated	414	73.8
Did Not Graduate	147	26.2
Total	**561**	**100.0**
Male		
Graduated	85	59.9
Did Not Graduate	57	40.1
Total	**142**	**100.0**

$x^2 = 10.02$, $p < .001$
Note: missing cases = 9
Source: AACTE Academic Achievement Study, 1989

Figure 6

Teacher Education Program Enrollment
and Completion, by Gender



Source: AACTE Academic Achievement Study, 1989

The data on graduation by race/ethnicity (Table 9) also indicate that about 72% of White students who enrolled in teacher education programs in the fall of 1985 and 1986 graduated by 1989. The percentages for Blacks and Hispanics were 66% and 75%, respectively. Approximately 28% of White teacher education students, 34% of Black, and 25% of Hispanic students were dropout/stopouts. Thus, it appears that although all students are more likely to graduate than not, this is less true of Black students than it is of White and Hispanic students.

Table 9

Teacher Education Program Within Group Completion of 1985, 1986 Sophomores in 1989 by Race/Ethnicity

(N = 711)

Variables	N	%
White		
Graduated	389	72.1
Did Not Graduate	150	27.8
Total	**539**	**100.0**
Black		
Graduated	90	66.2
Did Not Graduate	46	33.8
Total	**136**	**100.0**
Hispanic		
Graduated	27	75.0
Did Not Graduate	9	25.0
Total	**36**	**100.0**

$x^2 = 2.17, p > .05$
Note: missing cases = 1
Source: AACTE Academic Achievement Study, 1989

An analysis of teacher education program completion by institutional type indicates a higher graduation rate (81%) for research universities followed by doctoral-granting institutions with 79%, private liberal arts colleges with 72%, comprehensive colleges and universities with 64%, public liberal arts colleges with 60%, and specialized teacher colleges with 31.3% (see Table 10). Thus, the data indicate that all institution types have higher graduation than dropout/stopout rates except specialized teacher colleges.

Table 10

Percentage Distribution of Graduates by Institution Type

Type of Institution	Graduation Rate		Dropout/ Stopout Rate		Total	
	N	%	N	%	N	%
Research Univ.	102	81.0	24	19.0	126	100.0
Doctoral-Granting Instit.	157	79.7	40	20.3	197	100.0
Comprehensive Coll. & Univ.	102	64.6	56	35.4	158	100.0
Private Liberal Arts Coll.	86	72.3	33	27.7	119	100.0
Public Liberal Arts Coll.	46	60.5	30	39.5	76	100.0
Specialized Institutions	10	31.3	22	68.8	32	100.0

$x^2 = 45.22$, $p < .05$
Note: missing cases = 4
Source: AACTE Academic Achievement Study, 1989

There is a significant difference in the distribution of students by race/ethnicity among institutions. The data in Table 11 (Figure 6) indicate that a majority of the White students are distributed between large research universities, doctoral-granting institutions, and public liberal arts colleges. More Black students attend comprehensive colleges and universities and large research universities, as well as specialized institutions. Hispanic students are mostly found in large research universities and doctoral-granting institutions, as well as comprehensive colleges and universities.

As Table 12 shows, the highest graduation rates for Whites occur in large research universities (81.3%), doctoral-granting institutions (79.1%), and public liberal arts colleges (73.0%). Approximately 62.1 % and 57.5 % of White students graduate from private liberal arts colleges and comprehensive colleges and universities, respectively.

The highest graduation rates for Blacks occur in doctoral-granting institutions (87.5%), large research universities (78.4), and comprehensive colleges and universities (74.6%). Half of all Black students who enroll in public liberal arts colleges graduate, while one in four students who enroll in private liberal arts colleges graduate. Specialized teacher education institutions graduate less than a third of their Black student enrollees.

Table 11

Teacher Education Program Completion of 1985, 1986 Sophomores in 1989 Within Group by Type of Institution and Race/Ethnicity

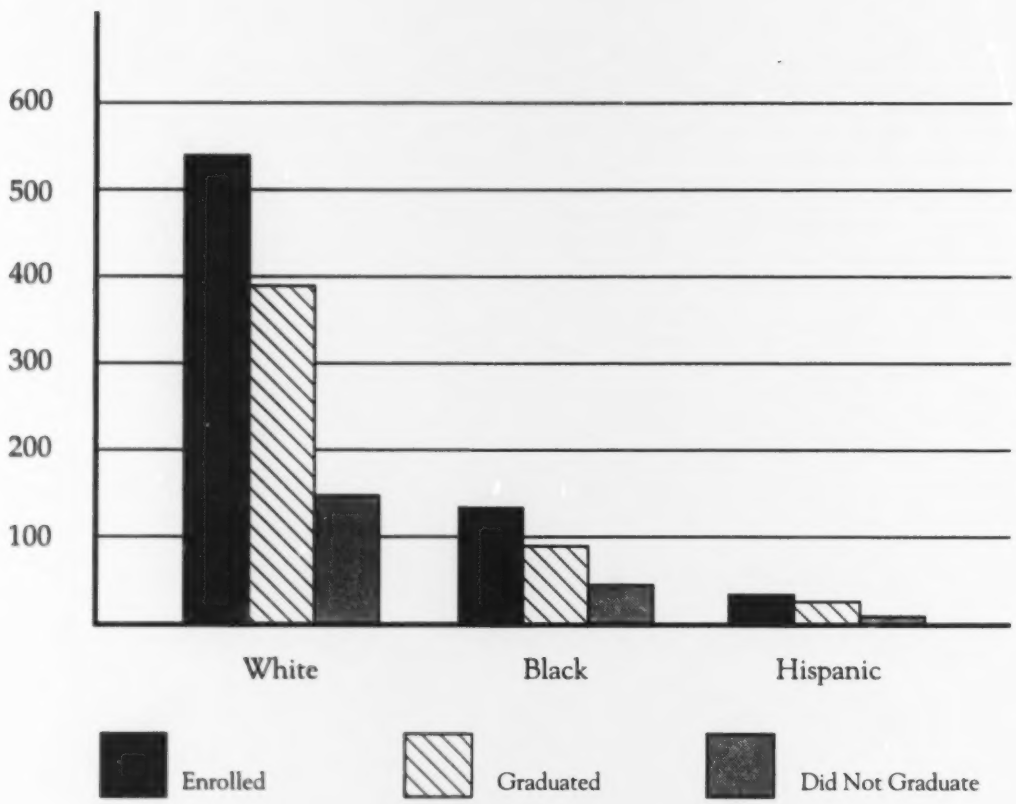
(N = 708)

Type of Institution	Race					
	White		Black		Hispanic	
	N	%	N	%	N	%
Graduated						
Research Universities	65	12.1	29	21.5	8	22.2
Doctoral-granting Institutions	144	26.8	7	5.2	6	16.7
Comp. Colleges & Universities	50	9.3	44	32.6	8	22.2
Private Liberal Arts Colleges	41	7.6	1	0.7	4	2.8
Public Liberal Arts Colleges	84	15.6	1	0.7	1	11.1
Specialized Institutions	3	0.6	7	5.2	—	—
Subtotal	387	72.1	89	65.9	27	75.0
Did Not Graduate						
Large Research Universities	15	2.5	8	5.9	1	2.8
Doctoral-granting Institutions	38	7.1	1	0.7	1	2.8
Comp. Colleges & Universities	37	6.9	15	11.1	4	11.1
Private Liberal Arts Colleges	25	4.7	3	2.2	2	5.6
Public Liberal Arts Colleges	31	5.8	1	0.7	1	2.8
Specialized Institutions	4	0.7	18	13.3	—	—
Subtotal	150	27.9	46	34.1	9	25.0
Grand Total	**537**	**100.0**	**135**	**100.0**	**36**	**100.0**

Source: AACTE Academic Achievement Study, 1989

Figure 7

Teacher Education Program Enrollment and Completion, by Race/Ethnicity



Source: AACTE Academic Achievement Study, 1989

Table 12

Percentage Distribution of Graduates by Institution Type and Race/Ethnicity

(N = 708)

Type of Institution	Race					
	White		Black		Hispanic	
	N	%	N	%	N	%
Large Research Universities						
Graduated	65	81.3	29	78.4	8	88.9
Did Not Graduate	15	18.7	8	21.6	1	11.1
Doctoral-granting Institutions						
Graduated	144	79.1	7	87.5	6	85.7
Did Not Graduate	38	20.9	1	12.5	1	14.3
Comp. Colleges & Universities						
Graduated	50	57.5	44	74.6	8	66.7
Did Not Graduate	37	42.5	15	25.4	4	33.3
Private Liberal Arts Colleges						
Graduated	41	62.1	1	25.0	4	66.7
Did Not Graduate	25	37.9	3	75.0	2	33.3
Public Liberal Arts Colleges						
Graduated	84	73.0	1	50.0	1	50.0
Did Not Graduate	31	27.0	1	50.0	1	50.0
Specialized Institutions						
Graduated	3	42.9	7	28.0	—	—
Did Not Graduate	4	57.1	18	72.0	—	—

Source: AACTE Academic Achievement Study, 1989

Discussion

The policies used in admitting students to college are usually formulated on the basis of the students' prior academic performance and such performance is, for the most part, measured by cognitive variables such as high school performance and test scores. Given differences in high school curricula across school districts, institutions tend to rely more on test scores which are perceived to provide some measure of standardization. Although such practices suggest efficiency in uniformity, they also prompt debate, particularly when their application has a disproportionate impact on certain classes or groups of individuals. Since test scores are used as indicators of college success, they tend to be primarily used as screening devices for selecting students for admissions. This study examined some of these and other academic achievement indicators that may predict White, Black, and Hispanic students' success in teacher education programs and the affect that they have on institutions' admissions policies and practices. The analysis focused on the relationships between student demographic and academic characteristics, performance on standardized tests, and achievement in teacher education programs. Race/ethnicity was a focus of this study because of the growing national concern over the under-representation of minorities in the teaching profession. Since this study indicates that standardized tests are seen and utilized as gatekeepers to the teaching profession, it is useful to examine issues relevant to test bias.

The debate over tests as scientific measures and the use of test scores to make political or administrative decisions centers on validity. Messick (1989) characterizes validity as an "integrated evaluative judgment of the degree to which empirical evidence and theoretical rationale support the adequacy and appropriateness of inferences and actions based on test scores" (p. 13). Operationally, bias derives from the decision of test use that is more often than not based on value judgment. For example, test scores used for admissions as well as a predictor of student's success in college may depend on how well the test scores actually predict performance for all groups of test takers before the use can be valid for making social policy decisions.

The issue of distinction between what is measured (aptitude, ability, and achievement) has not been resolved by measurement theorists (Cooley & Lohnes 1976; Anastasi 1984; Cronbach 1984). Bond (1989) draws attention to the distinction between procedural knowledge, which underlies aptitude tests, and subject matter content, which underlies achievement tests. Such distinction continues to challenge the validity of using test scores acquired from the cognitive domain (e.g., SAT, ACT) to predict achievement in the criterion domain (e.g., Pre-professional Skills Test, California Basic Education Skills Test).

Minority students' scores on aptitude tests, as well as on teacher examinations, have shown a gradual increase over the years but are still below the national average (College Board 1989; Educational Testing Service, 1989). Some critics have challenged the content and construct validity of such tests as measures of ability and achievement. Others have charged bias on the use of inferences from these tests for social policy decisions. Yet, if one assumes that these test measures derive from valid empirical evidence, and that the items are curricular specific, the inferences drawn may still not reflect a teacher's ability to teach. Anrig (1986) argues that there is no standardized test that can accurately measure such qualities as dedication, motivation, perseverance, caring, sensitivity, or integrity of the teacher. Rather,

he contends that the purpose of testing is to measure basic communication skills and pedagogical knowledge necessary to teach.

Following Anrig's logic, the expected social outcome of standardized tests for teachers derives not so much from the measure of the teacher's ability to teach but from the measure of the potential intellectual development of the teacher as evidenced by the mastery of general subject matter and professional knowledge. Aptitude tests are conceptualized not as measures of innate intelligence or fixed endowment, but as predictors or facilitators of learning or performance. Carroll (1978, p. 78) corroborates:

> to the extent that tests of the SAT type are valid in predicting college or graduate-school success, it is undoubtedly because they provide a good indication of the extent to which the applicants at the time of testing developed or acquired certain general intellectual skills in handling verbal, quantitative and symbolic information that are contributory or even necessary to high level success in academic studies.

This study reveals that the majority of institutions use multiple criteria as opposed to a single criterion for admission to teacher education programs. However, there is evidence of more reliance on cognitive criteria such as sophomore college GPA and examination scores in making admissions decisions than on noncognitive criteria such as letters of recommendation, personal essays, interviews, and portfolios. This finding is consistent with Skager (1982) who indicates that 9 out of 10 colleges and universities base admissions decisions on high school performance and test scores.

In a recent study, Coley and Goertz (1991) found that some Black and Hispanic students who had good academic records failed the NTE test, while about one third of the successful minority NTE test takers participated in special programs to improve their academic skills. This represents a case of test bias in screening minority students for college admissions, which could form the basis for a renewed call for the use of noncognitive criteria for admissions (Clark & Plotkin, 1963; Sedlacek, Brooks, & Mindus, 1973). However, the use of noncognitive criteria for college admissions has often been perceived as subjective, unsystematic, and not readily quantifiable even in spite of some empirical evidence that noncognitive criteria are predictive of Black student's persistence (Tracey & Sedlacek, 1987).

The institutions included in this study indicated that teacher entrance examination scores were considerably important in admitting students to teacher education programs. Although scores reported for certain types of these examinations were too few for any meaningful analysis (e.g. PPST, NTE, CBEST), SAT scores used to admit students to teacher education programs during the sophomore year provided enough data. SAT-verbal score was found to be a better predictor of success for all groups, although the predictive value tended to be higher for Whites than for minorities. The data also suggest that combined SAT scores predict White students' college performance but not Blacks'.

Cameron (1989) analyzed data on White and Black students' college-level performance using high school records and SAT scores and found that while high school record is a more efficient predictor of White students' performance, SAT is more efficient in predicting Black students' success. Similar

findings like Cameron's tend to justify the use of test scores as screening devices to assess student performance. However, our findings clearly demonstrate the opposite. The implication then is that admissions decisions that emphasize SAT scores as opposed to high school or college-level performance (in the case of admitting sophomores to teacher education programs) may put minorities at a disadvantage in terms of access.

Perhaps one of the most important findings of this study relates to entry- and college-level academic performance. There is a considerable gap between the entry academic achievement of Whites and minorities in high school GPA and on admissions SAT scores, but such gap narrows as the students progress through college. However, the data also show that Black students are more likely than Whites to earn lower college grades. This may be attributed to differential socioeconomic background. Research (American Association of Colleges for Teacher Education, 1988) indicates that White teacher education students come from families with higher incomes than their minority counterparts. Further, Manning and Jackson (1984) analyzed the impact of inadequate precollege preparation and low mean high school GPA on Black students' college performance. The study concluded that there was a relationship between Black students' low college grades and lower socioeconomic status, which inhibits their exposure to adequate precollege academic preparation.

Manning and Jackson's finding clearly speaks to the question of access and lends support to our finding. There is evidence that once minority students gain access to teacher education programs, their college performance is comparable to that of their White counterparts. Gaining access then, within the context of teacher preparation, presents two major hurdles for minorities to cross. The first constraint relates to the initial screening process of using high school GPA and test scores to admit students to college. This is a constraint since these variables are not the best indicators of minorities' academic success in college. Yet, prescribing different admissions standards for minorities, which take into account any deficiency in precollege preparation as a solution to the issue of access, will raise the question not only of inequity and unfairness to majority students, but also of lowering educational quality and standards for all.

The second constraint to minority access is the use of standardized tests for admissions to teacher education programs. Combined SAT scores used for sophomore admissions are found not to be good indicators of students' academic performance, even more so for Blacks and Hispanics than for Whites. The effect is that Whites are more likely than Blacks and Hispanics to be considered for admissions to teacher education programs.

There is a general perception that the field of education is dominated by faculty and students of inferior intellectual ability. Most notable proponents of this perception, Flexner (1930), Conant (1963), and Koerner (1963), have charged that education courses are less rigorous than noneducation courses. Weaver (1979) and Vance and Schlechty (1982), in their high school longitudinal study, suggest that students who indicate an interest in teaching were most likely to come from the low SAT scoring group. Furthermore, they concluded that students with high ability who entered teaching were more likely to migrate from education to other fields than were students with low ability.

This perception has attracted a plethora of empirical evidence from the education community, most of which has demonstrated otherwise. Brubaker and Yonker (1987) found that most of the evidence of low intellectual ability described by critics pertained to precollege students who indicated interest in teacher education and not to students who were actually in education programs.

Brook, Freeman, and Brousseau (1985) found no significant difference between the high school GPA of teacher education and non-teacher education students in their study. Most importantly, the study found that the teacher education students in the sample had a mean ACT composite score of 22, which was higher than the national average, while 37 students in the group who took the SAT test had a mean total score of 990. Fisher and Feldmann (1985) reported that teacher education students earned the same and sometimes higher ACT scores and mean GPAs in general education and major content area courses than their non-teacher education counterparts. Olsen (1985) who compared the academic performance of education and noneducation graduates on 11 variables (including high school rank, English and mathematics placement scores) found that education graduates performed equally and sometimes better than the noneducation graduates.

Wood (1990) compared the academic abilities of 7,499 teacher education and non-teacher education students and his findings were consistent with Olsen (1985) and Brubaker and Yonker (1987). The American Association of Colleges for Teacher Education (1988) conducted a study to determine the rigor of teacher education courses and found that more than half of the teacher education faculty and students surveyed rated teacher education courses as rigorous or more rigorous than the courses they took in English, mathematics, science, history, and foreign languages.

Although the data examined in this study are not comparative in focus, findings relative to the entry-level and college-level academic performance of the students are consistent with those previously reviewed. For example, mean SAT score of teacher education students was found to be higher than the national average of all SAT test takers.

While in the teacher education pipeline, the quality of the students attracted is also reflected in the grades that they earn in teacher education courses. The higher academic performance of all races in methods and field experiences, which are the core areas in teacher education, compared to foundations, seem to reinforce earlier findings that using cognitive assessment standards as screening devices to admit students into the teaching profession does not truly reflect students' ability to teach (Bray, 1984; Darling-Hammond, 1985; Garcia, 1986; Smith, 1987). The continuous use of such devices excludes students, especially minority students, from the pool of prospective teacher candidates.

When the data on program completion were examined, it was observed that the dropout/stopout rate among Blacks is higher than that of Hispanics and Whites. The reasons why Blacks choose to drop out/stop out more than their White and Hispanic counterparts are not readily apparent, but are not necessarily due to poor academic performance. A disturbing trend, then, relates to the cumulative effect of a lack of access at the entry level compounded by a high attrition rate at the exit level. This trend seems to perpetuate drastic reductions in the number of minorities who qualify for initial certification as teachers, and further accentuates the problem of minority teacher shortages.

Conclusions

This study concludes that teacher education institutions are still faced with the problems of equity and access in admissions practices on the one hand, and the phobia of educational quality and excellence on the other.

Addressing these problems requires a major institutional commitment to policy adjustment and program restructuring. It is important for institutions to reformulate admissions policies and design innovative strategies that will provide more access to minorities who express interest in teaching. This rethinking is necessary considering that minority students' academic performance while in teacher preparation is quite comparable to that of their White counterparts. Schools, colleges, and departments of education (SCDEs) could draw from the important findings of this study to assist in their recruitment and retention efforts to increase the pool of minority teachers.

The data examined indicate that a majority of the minority students are transfer students from community colleges. Effective articulation programs between institutions and community colleges would not only facilitate the transfer of students but also constitute the repository for recruiting prospective teacher education students. Outreach programs developed for faculty and student exchanges are an important strategy for university and community interactions and involvement. Incorporated in these programs are built-in incentive packages such as scholarships and loan forgiveness plans that would attract prospective students to teaching. Scholarship packages are crucial, particularly as federal grants have been decreasing dramatically over the past decade.

The data reveal that students from all races and ethnicities are admitted with the same admissions criteria. This finding does not support the notion that dual tracking systems exist whereby minorities are admitted with lower standards. However, institutions should rethink and reconstitute their admissions policies. The admissions policies should take into consideration those criteria that are most predictive of students' success. Institutions should develop a new admissions index that comprises measurable indices that carry equal weights in decision making. This index could include cognitive and noncognitive criteria. This provides fair admissions criteria that not only incorporate cognitive abilities, but also other relevant knowledge and experiences that are necessary for success as a teacher. The index could also be developed and used for initial recruitment of students from high school to college as well. If, as the data indicate, high school GPA is a better predictor of college success than the SAT scores, high school performance should be weighted against SAT scores and minimum scores developed, which could be improved upon over time.

The rationale behind the multiple weighted admissions index is particularly important when the question of minority access is considered. It is found that the entry-level academic performance of Whites was superior to those of Blacks and Hispanics. However, the gap in performance narrows dramatically between racial groups while in the pipeline. This is an indication that a bottleneck exists at the front end of the pipeline that tends to choke off minorities who would otherwise perform well in college.

The data show that attrition rate is higher among Blacks than among Whites and Hispanics, although the reasons for high attrition among Blacks is not evident in the study. The data reveal that minority students are older and are more likely to transfer than their White counterparts. It is possible that a lack of financial support, conflicts in school and work schedules, and other family responsibilities may contribute to high attrition rates. If so, the institutions could retain their minority students by providing adequate support systems to alleviate financial burdens that increase the tendency to dropout/stopout. Finally, contrary to a general perception, the teaching profession continues to attract high-ability students.

References

References identified with an EJ or ED number have been abstracted and are in the ERIC data base. Journal articles (EJ) should be available at most research libraries; documents (ED) are available in ERIC microfiche collections at more than 700 locations. Documents can also be ordered through the ERIC Document Reproduction Service: (800) 443-3742. For more information contact the ERIC Clearinghouse on Teacher Education, One Dupont Circle NW, Suite 610, Washington, DC 20036-1186, (202) 293-2450; or (800) LET-ERIC.

American Association of Colleges for Teacher Education.(1988). *Rate II—Teaching teachers: Facts and figures.* Washington, DC: Author. ED 304 410

American Association of Colleges for Teacher Education (1987). *Minority Teacher Recruitment and Retention: A Public Policy Issue.* Washington, DC: Author. ED 298 123

American Educational Research Association, American Psychological Association and National Council on Measurement in Education (1985). *Standards for educational and psychological testing.* Washington, DC: APA.

Anastasi, A. (1984). Aptitude and achievement tests: The curious case of the indestructible strawperson. In B.S. Plako (Ed.), *Social and technical issues in testing: Implications for test construction and usage.* Hillsdale, NJ: Lawrence Erlbaum.

Anrig, G. R. (1986). Teacher education and teacher testing: The rush to mandate. *Phi Delta Kappan, 67,* 447-451. EJ 333 055

Astin, A., Green, K., Korn, W., & Schalit, M. (1978). *The American freshman: National norms for fall 1977.* Los Angeles: Higher Education Research Institute, 55; Graduate School of Education, University of California, CA, 54, and The American Freshman: National Norms for 1986 (1987), 36. ED 290 371.

Astin, A. (1971). *Predicting academic performance in college.* New York: The Free Press.

Bloom, B. S., Hastings, J. T., & Madaus, G. F. (1971). *Handbook of formative and summative evaluation of student learning.* New York: McGraw-Hill. ED 049 304

Bond, L. (1981). Bias in Mental Tests. In B. F. Green (Ed.), *New directions for testing and measurement: Issues in testing - coaching, disclosure and ethnic bias, 11,* 55-77, San Francisco: Jossey-Bass. See EJ 254 501

Bond, L. (1989). The effects of special preparation on measures of scholastic ability. In R. Linn (Ed.), *Educational measurement (3rd Ed.),* 429-444. New York: American Council on Education/ MacMillan.

Bray, C. H. (1984). The Black public school teacher: Alabama's endangered species. In M. Davis (Ed.), *Prospective black teachers and the closing door: Strategies for entry* (pp.4-7). Birmingham, AL: Center for Higher Education. See ED 255 476

Brook, C., Freeman, D., & Brousseau, B. (1985). Comparing academic backgrounds and career aspirations of education and non-education majors. *Journal of Teacher Education,* 36(3), 28-30. EJ 320 457

BEST COPY AVAILABLE

Brubaker, H. A., & Yonker, R. J. (1987). Are those who select a career in teaching the academic equals of their non-teaching counterparts? *American Secondary Education, 16*(1), 2-7.

Cameron, R. (1989, Spring). Issues in testing bias. *College and Universities*, 64(3), 269-79. EJ 392 342

Carnegie Foundation Technical Report. (1987). *A classification of institutions of higher education*. New York: Carnegie Foundation for the Advancement of Teaching.

Carroll, J. B. (1978). On the theory-practice interface in the measurement of intellectual abilities. In P. Suppes (Ed.), *Impact of research on education: Some case studies*. Washington, DC: National Academy of Education. See ED 160 599

Clark, K. B., & Plotkin, L. (1963). *The Negro student at integrated colleges*. New York: National Scholarship Service and Fund for Negro Students. ED 011 268

Cole, N. S., & Moss, P. A. (1989). Bias in test use. In R.L. Linn (Ed.), *Educational measurement* (3rd ed.). New York: American Council on Education/MacMillan. 201-219.

Coley, R. J., & Goertz, M. E. (1991). *Characteristics of minority NTE test-takers*. Princeton, NJ: Educational Testing Service.

College Board. (1989). *College bound seniors: 1989 profile of SAT and achievement test takers*. Princeton, NJ: Educational Testing Service.

Conant, J. (1963). *The education of American teachers*. New York: McGraw-Hill.

Cooley, W. W., & Lohnes, P. (1976). *Evaluation research in education*. New York: John Wiley & Sons.

Cronbach, L. (1984). *Essentials of psychological testing*, (4th Ed.). New York: Harper & Row.

Darling-Hammond, L. (1985). *Equality and excellence: The educational status of Black Americans*. New York: The College Board. ED 256 844

Darling-Hammond, L., Johnson Pittman, K., & Ottinger, C. (1987). *Career choices for minorities: Who will teach?* Unpublished paper, National Education Association and Council of Chief State School Officers.

DeMauro, G. (1989). *Passing the NTE: A classification of state requirements and passing rates by ethnicity*. RR-89-15. Princeton, NJ: Educational Testing Service.

Dilworth, M. E. (1989). Recruitment: The good news and the bad news on the teaching profession. In A. M. Garibaldi (Ed.), *Teacher recruitment and retention with a special focus on minority teachers*. Washington, DC: National Education Association. See ED 314 382

Educational Testing Service. (1989). Edging forward: What the SAT shows about college-bound seniors in the 1980s. *ETS Policy Notes, 2*(3), 1-8.

Feistritzer, C. E. (1989). *Teacher crisis: Myth or reality?* Washington, DC: National Center for Education Statistics.

Fisher, R. I., & Feldmann, M. E. (1985). Some answers about the quality of teacher education students. *Journal of Teacher Education*, 36(3), 37-40. EJ 320 459

Flaugher, R. L. (1978). The many definitions of test bias. *American Psychologist*, 33(7), 671-679. EJ 184 332

Flexner, A. (1930). *Universities: American, English, German*. Oxford, England: Oxford University Press.

Gallegos, A. M. (1974, May). The negative consequences of teacher competency testing. *Phi Delta Kappan*, 65, 631.

Garcia, P. A. (1986). The impact of national testing on ethnic minorities: With proposed solutions. *Journal of Negro Education*, 55 (3), 347-357. EJ 343 280

Garibaldi, A. M. (1987). *Quality and diversity in schools: The case for an expanded pool of minority teachers*. Paper commissioned by AACTE for 1987 Wingspread Conference, Racine, WI. ED 295 931

Gifford, B. R. (1986). Excellence and equity in teacher competency testing: A policy perspective. *Journal of Negro Education*, 55(3), 251-271. EJ 343 272

Graham, P. A. (1987). Black teachers: A drastically scarce resource. *Phi Delta Kappan*, 68 (8), 598-605. EJ 352 274

Gronlund, N. E. (1981). *Measurement and evaluation in teaching*, (4th ed.). New York: MacMillan.

Guilford, J. P. (1946). New standards for test evaluation. *Educational and Psychological Measurement*, 6, 427-439.

Harris (Louis) and Associates, Inc. (1988). *The American teacher 1988: Strengthening the relationship between teachers and students*. New York: Metropolitan Life Foundation.

Holmes Group, Inc. (1986). *Tomorrow's teachers: A report of the Holmes Group*. East Lansing, MI: Author. ED 270 454

Johnson, S. T. (1979). *The measurement mystique: Issues in selection for professional school and employment. Occasional paper #2*, Washington, DC: Institute for the Study of Educational Policy.

Kelly, R. M. (1980). Ideology, effectiveness and public sector productivity: With illustrations from the field of higher education. *Journal of Social Issues*, 36(4), 76-95. EJ 237 946

Koerner, J. (1963). *The miseducation of American teachers*. Boston: Houghton Mifflin.

Manning, W. H. (1989). Broadening the bias for admissions decisions: The role of standardized testing in the admission of minority students. In Wanda W. Ward and Mary M. Cross (Eds.), *Key issues in minority education*. Norman, OK: University of Oklahoma: Research directions and practical implication. Center for Research on Minority Education. See ED 311 804

Manning, W., & Jackson, R. (1984). *College entrance examinations: Objective selection or gatekeeping for the economically privileged in perspective on bias in mental testing*. New York: Plenum Publishing Corporation.

Messick, S. (1989). Validity. In R. Linn (Ed.), *Educational measurement* (p. 13). New York: American Council on Education/MacMillan.

Olsen, D. G. (1985). The quality of prospective teachers: Education vs. noneducation graduates. *Journal of Teacher Education, 36*(5), 56-59. EJ 325 937

Post, I. M., & Woessner, H. (1987). Developing a recruitment and retention support system for minority students in teacher education. *Journal of Negro Education, 56*, 203-211.

Rudner, L. M. (1987). (Ed.). *What's happening in teacher testing: An analysis of state teacher testing practices*. Washington, DC: U.S. Department of Education, OERI. ED 284 867

Scheuneman, J.D. (1984). A theoretical framework for the exploration of causes and effects of bias in testing. *Educational Psychologist, 19*, 219-225.

Sedlacek, W. E., Brooks, G., & Mindus, L. (1973). Black and other minority admissions to large universities: Three-year national trends. *Journal of College Student Personnel, 9* (968), 177-179.

Shepard, L. A. (1982). Definitions of bias. In R.A. Berk (Ed.), *Handbook of methods for detecting test bias* (pp. 9-30). Baltimore: Johns Hopkins University.

Skager, R. (1982). On the use and importance of tests of ability in admission to postsecondary education. New York: College Board.

Smith, G. P. (1987). The impact of competency tests on teacher education: Ethical and legal issues in selecting and certifying teachers. In M. Haberman & J. Backus (Eds.), *Advances in teacher education. Vol. 3*, (218-247). Norwood, NJ: ABLEX Publishing Corp. See ED 254 493

Tracey, T. J., & Sedlacek, W. E. (1987). A comparison of white and black student academic success using non-cognitive variables: A LISREL analysis. *Research in Higher Education, 27* (4), 333-48. EJ 372 234

Vance, V. S., & Schlechty, P. C. (1982). The distribution of academic ability in the teaching force: Policy implications. *Phi Delta Kappan, 64*(1), 22-27. EJ 268 271

Watts, G. D. (1986). And let the air out of the volleyballs. *Phi Delta Kappan, 67*(11), 723-724. EJ 345 226.

Weaver, W. T. (1979). In search of quality: The need for talent in teaching. *Phi Delta Kappan, 61*(1), 29-32. EJ 206 302

Wood, P. H. (1990). The comparative academic abilities of students in education and in other areas of a multi-focus university. Ohio: Bowling Green State University. ED 327 480

Appendix A

Teacher Education Institutions by Type

Type I

N = 8

Public Research Universities

Private Research Universities

Type II

N = 4

Public Doctoral-granting Institutions

Private Doctoral-granting Institutions

Type III

N = 6

Public Comprehensive Colleges and Universities

Private Comprehensive Colleges and Universities

Type IV

N = 1

Private Liberal Arts Colleges

Type V

N = 3

Public Liberal Arts Colleges

Type VI

N = 1

Specialized Institutions

Appendix B

Institutional Data

Of the AACTE member institutions surveyed, 27 (79.4%) responded and 23 (68%) provided usable data. The total sophomore enrollment for the 23 responding institutions was 4,824 for the fall semesters of 1985 and 1986. Data on 712 students (15% of total enrollment) were provided for the study.

These institutions fell into the following categories:

Research Universities (Type I)—that offer a full range of baccalaureate programs, are committed to graduate education with a high priority in research, receive $12.5 million in federal support, and award at least 50 Ph.D. degrees each year.

Doctoral-granting Institutions (Type II)—that offer a full range of baccalaureate programs, have commitment to graduate programs through the doctorate, and award at least 10 Ph.D. degrees in three or more disciplines each year.

Comprehensive Colleges and Universities (Type III)—that offer baccalaureate programs and graduate programs up to the master's level, award more than half of their baccalaureate degrees in two or more occupational disciplines such as engineering, business administration, etc., and enroll at least 1,500 students.

Private Liberal Arts College 1 (Type IV)—that are highly selective undergraduate colleges that award more than half of their degrees in arts and sciences fields.

Public Liberal Arts College 2 (Type V)—that are less selective undergraduate colleges that award more than half of their degrees in arts and sciences fields and enroll less than 1,500 students.

Specialized Institutions (Type VI)—that typically offer degrees ranging from the bachelor to doctorate degree and award at least half of their degrees in a single specialized area.

The distribution of these institutions by region shows that 22% (5) are from the West, 22% (5) are from the Northeast, 30% (7) are from the Southeast, and 26% (6) are from the central region. Historically Black Institutions (HBIs) account for 22% (5) of the sample.

The 1985 sophomores represented 49.3% (351) of the sample while 1986 sophomores accounted for 50.7% (361). A further breakdown by year indicates that the 1985 sophomore group was comprised of 73.2% (257) White, 21.3% (75) Black, and 5.4% (19) Hispanics. In 1986, Whites represented 78.1% (282), Blacks 17.1% (62), and Hispanics 4.4% (17).

Appendix C

Supplementary Tables

Table A

Distribution of Sophomore Admissions GPA
to Teacher Education Programs

Variables/ GPA Range	N	%
Required sophomore GPA		
2.00	139	19.5
2.20	56	7.9
2.25	55	7.7
2.40	31	4.4
2.50	282	39.6
2.75	40	5.6
Nonresponse	109	15.3
Total	**712**	**100.0**
Prerequisite GPA in Teacher Education Courses		
2.00	141	19.8
2.50	81	11.4
2.60	24	3.4
2.75	40	5.6
Nonresponse	426	59.8
Total	**712**	**100.0**

Source: AACTE Academic Achievement Study, 1989

Table B

Frequency Distribution of 1985, 1986
Teacher Education Sophomores by Age

AGE	N	%
19	24	3.4
20	7	1.0
21	13	1.8
22	133	18.7
23	216	30.3
24	107	15.0
25	66	9.3
26	27	3.8
27	15	2.1
28	13	1.8
29	8	1.1
30	8	1.1
31	4	0.6
32	8	1.1
33	6	0.8
34	9	1.3
35	3	0.4
36	3	0.4
37	3	0.4
38	7	1.0
39	6	0.8
40	4	0.6
41	2	0.3
43	1	0.1
44	4	0.6
45	3	0.4
46	2	0.3
48	2	0.3
50	1	0.1
Missing Values	7	1.0
TOTAL	**712**	**100.0**

Source: AACTE Academic Achievement Study, 1989

Table C

Analysis of Variance of Grades in Teacher Education Courses Taken by 1985, 1986 Sophomore Students in Foundations, Methods, and Field Experiences

By	Department GPA	Grades in Teacher Education Courses
	Race/Ethnicity	White, Black, Hispanic
	Type	Type of Institutions (I-VI)*

Significance Source of Variation	*s.s.*	*df*	*m.s.*	*F*	*p* Level
Main Effects	10.555	7	1.508	6.703	0.001
Race	1.019	2	0.510	2.265	0.105
Type	6.457	5	1.291	5.741	0.000
Two-Way Interactions:					
Race-Type	4.021	9	0.447	1.986	0.038
Residual	145.990	649	0.225		
Total	**160.566**	**665**	**0.241**		

* Institutional Type:

I = Research Universities
II = Doctoral-granting Institutions
III = Comprehensive Colleges and Universities
IV = Private Liberal Arts Colleges
V = Public Liberal Arts Colleges
VI = Specialized Institutions

Source: AACTE Academic Achievement Study, 1989

Table D

Pearson's Correlation Matrix of High School GPA and College Performance of 1985, 1986 Teacher Education Students by Race/Ethnicity

Variables	White	Black	Hispanic	Total
Success	0.13**	0.38*	0.01	0.23*
	(352)	(85)	(10)	(447)
Senior	0.48*	0.33**	0.31	0.49
	(253)	(52)	(9)	(314)
Junior	0.49*	0.51*	0.10	0.52
	(281)	(49)	(10)	(340)
Sophomore	0.50*	0.47*	-0.08	0.54
	(320)	(64)	(9)	(393)
Freshman	0.51*	0.35**	-0.13	0.53
	(319)	(64)	(9)	(392)

* <.05
** <.01
Note: Cell sizes in parenthesis
Source: AACTE Academic Achievement Study, 1989

Table E

Pearson's Correlation Matrix of Combined SAT Scores and College Performance of 1985, 1986 Teacher Education Students by Race/Ethnicity

Variables	White	Black	Hispanic	Total
Success	0.08	0.19	—	0.16**
	(221)	(62)		(283)
Senior	0.41*	0.19	—	0.40*
	(166)	(42)		(208)
Junior	0.43*	0.21	—	0.39*
	(179)	(40)		(219)
Sophomore	0.41*	0.13	—	0.43*
	(199)	(52)		(251)
Freshman	0.39*	0.03	—	0.40*
	(197)	(52)		(249)

* <.05
** <.01
Note: Cell sizes in parenthesis
— not reported due to very small cell size
Source: AACTE Academic Achievement Study, 1989

Table F

Pearson's Correlation Matrix of SAT-verbal Scores and College Performance of 1985, 1986 Teacher Education Sophomores by Race/Ethnicity

Variables	White	Black	Hispanic	Total ***
Success	-0.07	-0.23	—	-0.15*
	(158)	(62)		(222)
Senior	0.32*	0.33*	—	0.37*
	(122)	(42)		(166)
Junior	0.33*	0.30*	—	0.34*
	(137)	(40)		(179)
Sophomore	0.33*	0.22*	—	0.40*
	(145)	(52)		(199)
Freshman	0.26*	0.21*	—	0.3551
	(144)	(52)		(198)

* <.05
** <.01
*** Total includes White, Black, and Hispanic
Note: Cell sizes in parenthesis
— data not reported due to small cell size
Source: AACTE Academic Achievement Study, 1989

Table G

Pearson's Correlation Matrix of SAT-math Scores and College Performance of 1985, 1986 Teacher Education Sophomores by Race/Ethnicity

Variables	White	Black	Hispanic	Total ***
Success	-0.09	-0.10	—	-0.14
	(158)	(62)		(222)
Senior	0.26*	0.08	—	0.29*
	(122)	(42)		(166)
Junior	0.30*	0.13	—	0.29
	(137)	(40)		(179)
Sophomore	0.33*	0.04	—	0.37*
	(145)	(52)		(199)
Freshman	0.31*	-0.09	—	0.33
	(144)	(52)		(198)

* <.05
** <.01
*** Total includes White, Black, and Hispanic
Note: Cell sizes in parenthesis
— data not reported due to small cell size
Source: AACTE Academic Achievement Study, 1989

Table H

Summary of Multiple Regression Analysis Using SAT Scores to Predict Overall GPAs of 1985, 1986 Teacher Education Students

Criterion Variables: (in each regression analysis)	Predictor Variable = SAT-Verbal					
	N	*beta*	*r*	R^2	multiple R	*p*
Senior GPA	142	0.37	0.37	0.13	0.37	.00009
Junior GPA	142	0.36	0.36	0.13	0.36	.00009
Sophomore GPA	142	0.36	0.36	0.13	0.36	.00009
Freshman GPA	142	0.37	0.37	0.14	0.37	.00009

Source: AACTE Academic Achievement Study, 1989

Table I

Distribution of Mean GPA and SAT Scores of 1985, 1986 Teacher Education Sophomore Students by Race/Ethnicity, Type of Institution, and Class

Type of Institution and Race/Ethnicity	N	SAT Combined	N	HS GPA	N	Fresh. GPA	N	Soph. GPA	N	Jr. GPA	N	Sr. GPA
					Mean Test Score, GPA, and Class							
I. Total	54	962	69	3.09	100	2.71	118	2.86	109	3.01	105	3.13
White	39	1005	54	3.12	67	2.83	73	3.00	68	3.12	67	3.20
Black	14	842	11	2.91	26	2.33	37	2.56	32	2.80	30	2.97
Hispanic	1	980	4	3.13	7	3.00	8	3.04	9	2.95	8	3.28
II. Total	100	989	106	3.27	186	2.79	183	2.90	176	3.02	155	3.14
White	95	996	96	3.31	174	2.80	170	2.91	164	3.02	141	3.15
Black	4	877	5	3.04	7	2.49	7	2.60	6	2.84	7	2.85
Hispanic	1	750	5	2.90	5	2.73	6	3.03	6	3.03	7	3.08
III. Total	38	672	95	2.93	138	2.79	135	2.77	109	2.99	102	3.03
White	4	905	49	3.22	86	2.90	83	2.88	70	3.05	50	3.10
Black	34	645	45	2.61	40	2.56	40	2.54	31	2.82	44	2.95
Hispanic	—	—	1	3.09	12	2.74	12	2.77	8	3.10	8	3.09
IV. Total	—	—	27	3.18	66	2.87	64	2.91	48	2.97	49	3.19
White	—	—	27	3.18	61	2.86	57	2.89	47	2.96	44	3.19
Black	—	—	—	—	3	3.10	3	3.21	1	3.10	1	2.85
Hispanic	—	—	—	—	2	2.81	4	2.90	—	—	4	3.27

Table I *(continued)*

Type of Institution and Race/Ethnicity	N	SAT Combined	N	HS GPA	N	Fresh. GPA	N	Soph. GPA	N	Jr. GPA	N	Sr. GPA
				Mean Test Score, GPA, and Class								
V. Total	—	—	26	3.67	108	2.81	106	2.88	102	3.00	87	3.19
White	—	—	25	3.67	104	2.80	102	2.87	98	3.00	85	3.18
Black	—	—	1	3.87	2	2.76	2	3.02	2	2.94	1	3.13
Hispanic	—	—	—	—	2	3.31	2	3.24	2	3.35	1	3.42
VI. Total	11	757	30	2.48	20	2.66	21	2.82	14	2.96	10	3.39
White	2	875	7	2.86	5	3.07	5	3.02	2	3.53	3	3.69
Black	9	731	23	2.36	15	2.52	16	2.70	12	2.86	7	3.26
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—

— data not reported due to very small cell size

Institutional Type

I = Large Research Universities
II = Doctoral-granting Institutions
III = Comprehensive Colleges and Universities
IV = Private Liberal Arts Colleges
V = Public Liberal Arts Colleges
VI = Specialized Institutions

Source: AACTE Academic Achievement Study, 1989

American Association of Colleges for Teacher Education
One Dupont Circle, Suite 610
Washington, DC 20036-1186
phone 202/293-2450 • fax 202/457-8095

BEST COPY AVAILABLE